DISCIPLINE SHEET

TOXICOLOGICAL IMPLICATIONS OF MEDICINAL PLANTS

ACADEMIC YEAR

2026–2027

1. STUDY PROGRAM INFORMATION

1.1. Higher education institution	UNIVERSITY OF MEDICINE AND PHARMACY OF CRAIOVA
1.2. Faculty	**PHARMACY**
1.3. Department	PHARMACY II
1.4. Field of study	HEALTH
1.5. Study cycle	MASTER
1.6. Study program/Qualification	PHARMACOLOGY AND TOXICOLOGY/Pharmacotoxicology specialist

2. INFORMATION ABOUT THE DISCIPLINE

2.1. Name of the discipline			**TOXICOLOGICAL IMPLICATIONS OF MEDICINAL PLANTS**				
2.2. Discipline code			FTITPM				
2.3. The holder of course activities			George Dan MOGOŞANU				
2.4. Academic degree – course activities			Associate Professor, PhD				
2.5. Employment (base norm/associate)			Base norm				
2.6. The holder of seminar activities			Andrei BIŢĂ				
2.7. Academic degree – seminar activities			Lecturer, PhD				
2.8. Employment (base norm/associate)			Base norm				
2.9. Year of study	**I**	2.10. Semester	**I**	2.11. Type of discipline (content)	**DS**	2.12. Student attendance policy	**DOP**

3. TOTAL ESTIMATED TIME

3.1. Number of credits						**4**
3.2. Number of hours per week	course	1	seminar/practical work	1	total	**2**
3.3. Total hours in the curriculum	course	14	seminar/practical work	14	total	**28**
3.4. Examinations						**2**
3.5. Total hours of individual study						**70**
3.5.1. Study using textbooks, course materials, bibliographies, and notes						**30**
3.5.2. Additional documentation in the library, on specialized electronic platforms, and in the field						**20**
3.5.3. Preparation of seminars/practical works, assignments, reports, portfolios, and essays						**15**
3.5.4. Tutoring						**–**
3.5.5. Other activities (consultations)						**5**
3.6. Total hours per semester (1 credit=25 hours)						**100**

4. PREREQUISITES

4.1. Curriculum	–
4.2. Competences	–

5. CONDITIONS

5.1. For conducting the course	Classroom with audio/video equipment. Preparation of the topic in accordance with the teacher's requirements.
5.2. For conducting the seminary/practical work	Practical work room/online environment. Students should review the theoretical concepts and working methods in the practical work manual before carrying out the work.

6. SPECIFIC COMPETENCES ACQUIRED

PROFESSIONAL COMPETENCES	**PC1**. Participation in groups that create therapeutic guides, medical agendas or information sites in the field of medicine. **PC3.** Activity within the toxicological analysis laboratories of resuscitation and forensic medicine services. **PC4.** Patient counseling activity and training of staff within the drug prevention, assessment and counseling center.

TRANSVERSAL COMPETENCES	**TC1**. Autonomy and responsibility: • the acquisition of moral marks, the formation of professional and civic attitudes, allowing students to be correct, honest, non-conflict, cooperative, available to help people, interested in community development; • to know and apply the ethical principles related to specifics of professional qualification; • to recognize a problem when it comes out and to provide solutions responsible for solving it. **TC2**. Social interaction: • to have respect for diversity and multiculturalism; • to develop teamwork skills; • to communicate orally and in writing the requirements, the way of work, the results obtained; • to engage in volunteering, to know the essential issues of the community. **TC3**. Personal and professional development: • to have openness to lifelong learning; • to become aware of the need for individual study as a basis for personal autonomy and professional development; • to capitalize optimally and creatively their own potential in the collective activities; • to use the information and communication technology.

7. DISCIPLINE OBJECTIVES

GENERAL OBJECTIVE OF THE DISCIPLINE

▪ Acquiring theoretical and practical knowledge regarding the toxicological implications of medicinal plants.

SPECIFIC OBJECTIVES

▪ Acquiring knowledge about potentially toxic medicinal plants: origin, pharmacognostic analysis, toxicological implications (botanical diagnosis, poisoning symptoms, antidotes);

▪ Mastering modern methods and techniques for analysis and control of toxic substances of plant origin and medicinal plant products with toxicological implications.

8. CONTENTS

8.1. Course (content units)	No. of hours
1. Toxicity of medicinal plants with alkaloids. Drug addicts.	4
2. Medicinal plants potentially toxic to the cardiovascular system.	1
3. Toxicity of medicinal plants with cyanogenic glycosides, sulfur-containing glycosides, lectins.	1
4. Toxicity of medicinal plants with saponins.	1
5. Toxicity of aromatic plants.	1
6. Medicinal plants potentially allergenic. Medicinal plants potentially toxic to the skin (causing dermatitis, photosensitizing).	3
7. Medicinal plants potentially toxic at the digestive level. Food risks. Medicinal plants potentially toxic at the endocrine level. Medicinal plants contraindicated during pregnancy and breastfeeding.	1
8. Interactions between medicinal plants and drugs.	1
9. Recommended behavior in plant poisoning.	1
Total	**14**

REFERENCES

1. Bejenaru L.E., Mogoşanu G.D., Biţă A., Bejenaru Cornelia, Popescu H. (2026) *Farmacognozie generală. Farmacognozie specială: Materii prime naturale cu glucide, lipide, compuşi azotaţi, heterozide, compuşi aromatici*. Ed. Medicală Universitară, Craiova.
2. Bruneton J. (2016) *Pharmacognosie. Phytochimie. Plantes médicinales*, 5e édition, revue et augmentée. Lavoisier TEC & DOC, Paris.
3. Bruneton J. (2005) *Plantes toxiques: végétaux dangereux pour l'Homme et les animaux*, 3e édition, revue et augmentée. Lavoisier TEC & DOC, Paris.
4. Firenzuoli F. (2018) *Capcanele ascunse ale produselor naturale: ghid pentru folosirea corectă şi în siguranţă a plantelor medicinale*. Ed. M.A.S.T., Bucureşti.
5. Hanganu Daniela, Popescu H. (2002) *Plante toxice*. Ed. Medicală Universitară „Iuliu Haţieganu", Cluj-Napoca.
6. Istudor Viorica. (1998) *Farmacognozie, Fitochimie, Fitoterapie*. Vol. I, Ed. Medicală, Bucureşti.
7. Istudor Viorica. (2001) *Farmacognozie, Fitochimie, Fitoterapie*. Vol. II, Ed. Medicală, Bucureşti.
8. Istudor Viorica. (2005) *Farmacognozie, Fitochimie, Fitoterapie*. Vol. III, Ed. Medicală, Bucureşti.
9. Mogoşanu G.D., Bejenaru L.E., Biţă A., Bejenaru Cornelia, Popescu H. (2026) *Farmacognozie specială: Materii prime naturale cu compuşi aromatici, izoprenoide, răşini, balsamuri, gudroane, varia*. Ed. Medicală Universitară, Craiova.
10. Williamson Elisabeth, Driver S., Baxter Karen (eds). (2009) *Stockley's herbal medicines interactions. A guide to the interactions of herbal medicines, dietary supplements and nutraceuticals with conventional medicines*. Pharmaceutical Press, Royal Pharmaceutical Society of Great Britain, London–Chicago.

8.2. Practical works (content units)	No. of hours
1. Analysis and control of medicinal plant products with alkaloids.	4
2. Cardiotonic glycosides: analysis and control.	1
3. Analysis and control of medicinal plant products with cyanogenic glycosides.	1
4. Analysis and control of medicinal plant products with triterpenoid saponins.	1
5. *Aetherolea:* analysis and control.	3
6. Analysis and control of medicinal plant products with benzopyran derivatives (coumarins).	1
7. Anthracene derivatives: analysis and control.	1
8. Global chemical analysis of toxic substances of plant origin: extraction, separation, identification.	1
9. Phytochemical analysis test.	1
Total	**14**

REFERENCES

1. Biţă A., Mogoşanu G.D., Bejenaru L.E., Bejenaru Cornelia. (2020) *Analiza fizico-chimică a produselor naturale medicinale*. Ed. Medicală Universitară, Craiova.
2. Bruneton J. (2005) *Plantes toxiques: végétaux dangereux pour l'Homme et les animaux*, 3e édition, revue et augmentée. Lavoisier TEC & DOC, Paris.
3. Gîrd Cerasela Elena, Duţu Ligia Elena, Popescu Maria Lidia, Pavel Mariana, Iordache Alina Titina, Tudor Ioana. (2008) *Bazele teoretice şi practice ale analizei farmacognostice*. Vol. I, Ed. „Curtea Veche", Bucureşti.
4. Gîrd Cerasela Elena, Duţu Ligia Elena, Popescu Maria Lidia, Pavel Mariana, Iordache Alina Titina, Tudor Ioana. (2009) *Bazele teoretice şi practice ale analizei farmacognostice*. Vol. II, Ed. „Curtea Veche", Bucureşti.
5. Hanganu Daniela, Popescu H. (2002) *Plante toxice*. Ed. Medicală Universitară „Iuliu Haţieganu", Cluj-Napoca.
6. Locatelli M., Tomczyk M., Dugo Laura, Russo Marina. (2025) *Phytochemicals for health*. 1st edition, Elsevier, London, UK.
7. Oniga Ilioara, Benedec Daniela, Hanganu Daniela. (2003) *Analiza produselor naturale medicinale*. Ed. Medicală Universitară „Iuliu Haţieganu", Cluj-Napoca.
8. Srivastava M.M. (ed). (2011) *High-performance thin-layer chromatography (HPTLC)*. Springer-Verlag, Berlin–Heidelberg.
9. Stănescu Ursula Helena (ed), Hăncianu Monica, Gîrd Cerasela Elena. (2020) *Farmacognozie: produse vegetale cu substanţe bioactive*. Ed. Polirom, Iaşi.
10. Wagner H., Bladt Sabine. (1996) *Plant drug analyis. A thin layer chromatography atlas*. Springer Verlag, Berlin–Heidelberg.

9. CORROBORATING THE DISCIPLINE CONTENT WITH THE EXPECTATIONS OF EPISTEMIC COMMUNITY REPRESENTATIVES, PROFESSIONAL ASSOCIATIONS AND EMPLOYEE REPRESENTATIVES RELATING TO THIS PROGRAM

▪ Mastering modern methods and techniques for analysis and control of potentially toxic medicinal plants – provenance, pharmacognostic characterization, toxicological implications (botanical diagnosis, poisoning symptoms, antidotes).

10. METHODOLOGICAL GUIDELINES

Types of activity	Teaching/learning techniques, materials, resources: lectures, interactive courses, group work, problem-based/project-based learning, etc. Learning, teaching, research, and practical application activities within the discipline are conducted in a blended format.
Course	The following methods are used in combination: lectures, debates, problem-solving.
Practical works	The following methods are used in combination: practical applications, case studies, projects.
Individual study	Before each course and each practical assignment.

11. EVALUATION

Type of activity	Evaluation forms	Evaluation methods	Weight of final grade
Lecture	Formative assessment through tests during the semester Summative assessment during the exam	Written exam. Grades are given on a scale of 1–10. The minimum passing grade is 5.	60%
Practical work	Formative assessment through tests during the semester Summative assessment in the last week of the semester	Oral exam. Grades are given on a scale of 1–10. The minimum passing grade is 5.	20%
Assessment of stage knowledge	Tests during the semester	Test (written). Grades are given on a scale of 1–10. The minimum passing grade is 5.	10%
Individual performance evaluation	Formative assessment through essays, projects, worksheets, applied discussion	Applied discussion	10%

Minimum performance standard	Identification of potentially toxic medicinal plants.
Appeals	According to the Student Examination Methodology.

12. RECOVERY PROGRAM AND CONSULTATIONS

Absence recovery	**No. absences that can recover**	**Place of deployment**	**Period**	**In charge**	**Scheduling of topics**
	3	Official Discipline location	Weekly	All teaching staff	According to the course schedule
Consultation schedule	**No. of hours**	**Place of deployment**	**Period**	**In charge**	**Scheduling of topics**
	2 hours/week	Headquarters of the Discipline	Weekly	Course instructors	Theme of the week

Date of approval: 18th September 2026

Dean,	**Department Director,**	**Discipline Holder,**
Prof. univ. dr. Octavian Croitoru	Prof. univ. dr. Cătălina Gabriela Pisoschi	Conf. univ. dr. George Dan Mogoşanu